Stem Cell Summer Research Experiences

Grant Award Details

Stem Cell Summer Research Experiences

Grant Type: SPARK

Grant Number: EDUC3-13179

Project Objective: This SPARK program provides 8-week summer research internships for high school students instep cell biology laboratories at UCSF. Students, with diverse backgrounds and underrepresented in biomedical research, will receive mentorship, participate in workshops and seminars as well as patient engagement activities. At the conclusion of their eight week internships, students will present their research in a culminating SPARK conference.

Investigator:

Name:	Katherine Nielsen
Institution:	University of California, San Francisco
Type:	PI

Award Value: $508,750

Status: Pre-Active

Grant Application Details

Application Title: Stem Cell Summer Research Experiences

Public Abstract:

Through this training program, 50 high school students from backgrounds underrepresented in the sciences will pursue summer research projects in stem cell biology at a major research university. Students will spend the bulk of their summer conducting research under the guidance of a mentor scientist. To prepare them for success in the program, they will begin the summer with an orientation that will help students feel confident entering and navigating the laboratory environment. Throughout the summer, interns will meet regularly to: 1) learn about and develop their skills as science communicators; 2) learn about stem cell research and the translation of research to patient care; and 3) participate in patient engagement activities and community outreach initiatives. Students will attend a series of talks where researchers will share their personal stories about how and when they became interested in science, their unique pathway to their career in science, and a rich description of their research. Presenters will highlight ways in which their research contributes to our understanding of regenerative medicine and the development of stem cell treatments for patient care. Students will also hear from patients, patient advocates and participate in patient engagement activities. They will do community outreach work such as writing blog entries about their experience as an intern and posting photos on Instagram of their work in the lab.

Longitudinal studies of alumni from this program demonstrate that they pursue higher education and careers in the sciences in numbers that greatly exceed their demographically-matched peers. Thus, we are confident that many of these 50 students will continue working in biomedical research or related fields. Irrespective of their career choices, all CIRM-funded alumni will build their lab skills, learn research practices, and understand the importance of stem cell research and accelerating stem cell therapies to patients with unmet medical needs, thereby becoming "stem cell ambassadors" who can help others in California understand this work and advocate for continued funding.

Statement of Benefit to California:

This proposed project will further the educational and scientific careers of high school students from backgrounds underrepresented in the sciences. This project will increase student access to educational resources that are not typically available in public high schools. These summer research experiences, coupled with programming to support students' understanding of science and scientific careers, will develop science literacy amongst young adults. Many will be politically active and engaged for years to come. Students will gain a comprehensive understanding of how science is done, how it changes over time, how scientific knowledge comes to be, and how to think critically. Research scientists will mentor these high school students, many of whom will come from backgrounds different from those of the scientists. Through engaging in this mentorship and participating in workshops focused on mentoring, these early career scientists will develop their mentoring skills and their abilities to educate lay audiences about their research.

Supporting high school students and scientist mentors will ultimately diversify and build the life science workforce in California. This program will develop STEM talent by focusing on students that may get overlooked in school or other summer programs that do not explicitly recruit students from backgrounds underrepresented in the sciences. The summer experience will increase students' self-confidence in science, help them develop a sense of belonging and inclusion in science, and increase persistence to STEM degrees. Diversifying the scientific field is of critical importance to the state of California and its citizens for several reasons. Most critically, a more diverse biomedical workforce has been repeatedly cited as a mechanism for addressing disparities in health and healthcare. In addition, shortages in the life science workforce from technicians to advanced scientists are predicted in California; and the annual wages in STEM fields greatly exceed the national averages in other fields, providing economic stability and the potential for upward mobility for the low-income, minoritized, and immigrant students who participate in this program. This program will help high school students realize their academic potential – resulting in their matriculation to college, completion of their undergraduate education, and ultimately, enabling them to pursue careers in the sciences.

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